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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,840	08/09/2006	Jantje Kromkamp	101137-72	6976

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EXAMINER	
GONZALEZ, MADELINE	

ART UNIT	PAPER NUMBER
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/597,840	KROMKAMP ET AL.	
	Examiner	Art Unit	
	MADELINE GONZALEZ	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In response to applicant's amendment dated July 22, 2009

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 5, 9 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence et al. (U.S. 5,958,243) [hereinafter Lawrence] in view of Castelas et al. (FR 2586202) [hereinafter Castelas].

With respect to **claim 1**, Lawrence discloses a filtration system, as shown in Fig. 3, having:

- a micro or ultrafiltration filter chosen from the group consisting of micro and ultrafiltration filters (see col. 4, lines 65-67), having a filter housing 2 bounding a retentate side 4 and a permeate side 5 that are separated from each other by filter material 3;
- a fluid supply pipe that is connected to the retentate side 4;
- a permeate discharge pipe that is connected to the permeate side 5;
- a shut-off valve 9 that is provided in the permeate discharge pipe; and

- means for increasing the pressure in the permeate side 5 connected to the permeate side 5 when the shut-off valve 9 is closed to a value that is higher than the pressure on the retentate side 4, wherein the means for increasing the pressure in the permeate side includes:
    - at least one permeate circulation circuit which is, on the one side, connected, by an inlet, to the permeate discharge pipe at a point downstream of the shut-off valve 9 and, on the other side, by an outlet, to the permeate side 5 of the filter housing 2;
    - wherein a permeate circulation pump 15 is provided in the permeate circulation circuit;
    - wherein the permeate circulation circuit has a configuration adapted to maintain a continuous flow of permeate into the permeate side of the filter housing 2, for example during backwash mode (see col. 5, lines 62-67 and col. 6, lines 1-11) [This limitation is considered to be a functional recitation which must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this case, the permeate circulation circuit disclosed by Lawrence is capable of maintain a continuous flow of permeate into the permeate side of the filter housing 2]; and

- a permeate buffer 19 in the permeate circulation configured to feed the permeate circulation pump 15 during the closed condition of the shut-off valve 9.

Lawrence **lacks** a controller adapted to operate the shut-off valve at a high frequency.

Castelas teaches a process having a filter 1, shut-off valve 7 and a controller 14 adapted to operate the shut-off valve as shown in Fig. 1. It would have been obvious to provide the shut-off valve disclosed by Lawrence with a controller, as taught by Castelas, in order to automatically operate the valve and since the court held that broadly providing an automatic or mechanical means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art (see *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958))

With respect to **claim 2**, Lawrence discloses wherein the shut-off valve is configured to be opened and closed periodically, wherein the shut-off valve is kept in a closed position so long that a higher pressure is built up on the permeate side than on the retentate side, such that a reversal of the fluid flow in the filter material occurs, wherein the means for increasing the pressure in the permeate side is configured such that, for the rest, a reversal of flow direction of fluid volumes in pipes of the apparatus is prevented (see col. 5, lines 62-67 and col. 6, lines 1-11 of Lawrence).

With respect to **claim 4**, Lawrence discloses wherein, upstream of the outlet of the permeate circulation circuit and downstream of the pump, a restriction 2 is included, as shown in Fig. 3.

With respect to **claim 5**, Lawrence discloses wherein, in the permeate buffer includes a permeate buffer tank 19, as shown in Fig. 3.

With respect to **claim 9**, Lawrence discloses more than one permeate circulation circuit, as shown in Fig. 3.

With respect to **claims 11 and 12**, Lawrence and Castelas **lack** the specific frequency range of the controller and valve, and the specific percentages that the valve will be opened and closed in a period. However, it would have been obvious to programmed the controller disclosed by Lawrence as modified by Castelas to a desired frequency and operating ranges as claimed by applicant, since the courts have held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (see *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

With respect to **claim 13**, Lawrence as modified by Castelas discloses the shut-off valve having a housing, a rotating camshaft arranged in the housing and having a cam, wherein the cam of the camshaft forms a closure in a certain range of rotational

positions and allows a free passage of permeate in other position, and further wherein the camshaft is continuously drivable, as shown in Fig. 1 of Castelas.

With respect to **claim 14**, Lawrence as modified by Castelas discloses wherein the controller is configured to control the rotational speed of the camshaft for controlling back-pulse frequency, as shown in Fig. 1 of Castelas.

With respect to **claim 15**, Lawrence discloses the method step of operating the system so that, in the filter housing 2, periodically at high frequency, as higher pressure is built up on the permeate side 5 than on the retentate side 4, such that a reversal of the fluid flow in the filter materil 3 occurs, wherein, for the rest, a reversal of flow direction of the fluid volumes in pipes is prevented (see col. 5, lines 62-67 and col. 6, lines 1-11).

With respect to **claim 16**, Lawrence discloses wherein on both the retentate 4 and the permeate side 5 of the filter housing 2, a cross-flow is maintained (see col. 6, lines 34-46).

Claims 6-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence (U.S. 5,958,243) and Castelas (FR 2586202) as stated above with

respect to claim 1, and further in view of Storkebaum et al. (U.S. 4,749,476) [hereinafter Storkebaum].

Lawrence **lacks** the limitation of **claim 6**, i.e., a retentate circulation circuit.

Storkebaum discloses an apparatus, as shown in Fig. 1, having a retentate circulation circuit, including conduit 22, in order to return the retained substance to the feed supply, if desired to do so. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the system disclosed by Lawrence with a retentate circulation circuit as taught by Storkebaum in order to return the retained substance to the feed supply, if desired to do so (see col. 3, lines 42-45).

With respect to **claim 7**, Lawrence discloses wherein the outlet of the permeate circulation circuit is connected to a first end of the permeate side 5 of the filter housing, wherein the permeate discharge pipe is connected to a second end of the permeate side 5 of the filter housing, wherein the first end is opposite the second end, such that, on the permeate side 5 of the filter housing, a cross-flow along the filter material 3 occurs, wherein the cross-flow on the retentate side 4 has the same flow direction as the cross-flow on the permeate side 5, as shown in Fig. 3.

With respect to **claim 8**, Lawrence as modified and Storkebaum discloses wherein, in opened condition of the said shut-off valve, the circulation in both said circulation circuits is such that the pressure drop is substantially equal over the whole surface of the filter material 3, as shown in Fig. 3 of Lawrence.

With respect to **claim 10**, Storkebaum discloses a rententate discharge pipe that is connected to the retentate circulation circuit, as shown in Fig. 1.

Response to Arguments

Applicant's arguments filed on July 22, 2009 have been fully considered but they are not persuasive.

In response to applicant's argument that Lawrence lacks a permeate circulation circuit in which a continuous flow of permeate is maintained: Lawrence teaches a permeate circulation circuit, as shown in Fig. 3, having a configuration adapted to maintain a continuous flow of permeate into the permeate side of the filter housing 2, as claimed by applicant, since during backwash mode valves 13 and 14 are open and permeate is pumped into chamber 5 of housing 2 (see col. 5, lines 62-67 and col. 6, lines 1-11). Furthermore, this limitation is considered to be a functional recitation which must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this case, the permeate circulation circuit disclosed by Lawrence is capable of maintain a continuous flow of permeate into the permeate side of the filter housing 2.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MADELINE GONZALEZ whose telephone number is (571)272-5502. The examiner can normally be reached on M, T, Th, F- 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/
Primary Examiner, Art Unit 1797

Madeline Gonzalez
Patent Examiner
September 18, 2009